Pages

THE CONNECTICUT Agricultural Experiment STATION.

Bulletin 33.—October 7th, 1879.

LABORATORY AND
IN EAST WING OF
SHEFFIELD HALL,
Grove St., Head of Colle

Instructions and Forms fo taking samples and terms for testing Fertilizers, Seeds, &c for private parties, sent on application.

Parcels by Express, to receive [illegible], should be pr- paid, and all communications should be directed to

Agricultural Experiment Station,
New Haven, Conn.

FERTILIZER ANALYSES.

306. Decomposed Fish and Beef Bones. Manufactured by The Earle Phosphate Co., Providence, R. I. Sampled and sent July 7, by R. S. Hinman, Birmingham.

312. Americus Ammoniated Superphosphate.

313. Universal Superphosphate of Lime. Both the above were manufactured by Rafferty & Williams, 44th Street and East River, New York, city. Sampled and sent August 14, by D. H. Van Hoosear, East Wilton.

	306	*312*	*313*
Nitrogen	3.92	2.33	2.41
Sol. Phos. Acid	6.03	7.52	5.63
Rev. Phos. Acid	4.96	0.95	0.98
Ins. Phos. Acid	1.70	2.29	2.17
Potash	.60	2.09	1.84
Chlorine	.49	2.53	4.80
Est. val. per ton	$42 97	$35.02	$30.18
Cost per ton	60.00 (?)	33.00*	28.00*

* In New York.

307. Leached ashes, from stock of Nelson Alvord, Southport, 12½ cts. per bushel of 56 lbs.

308. Leached ashes from stock of D. Thorp, Southport, 14 cts. per bushel of 54 1-5 lbs. 307 and 308 were sampled and sent August 8, by Moses Sherwood, Southport.

309. Canada ashes from Asheries about Ontario. From stock of J. A. Bill, Lyme. Sampled and sent August 8, by Henry Baldwin, South Canterbury, 16½ cts. per bushel of 58 lbs.

	307	*308*	*309*
Moisture	26.88	24.05	33.99
Char	1.96	3.06	1.48
Insoluble in acids	9.82	5.76	7.65
Oxide of Iron	1.43	2.60	1.46
Lime	29 83	33.59	28.71
Magnesia	3.22	3.07	2.61
Potash	1.00	1.29	1.04
Soda	0.61	0.53	0 62
Sulphuric acid	0.13	0.13	0.13
Phosphoric acid	1.30	2.02	1 55
Chlorine	trace	trace	trace
Carb'c acid by diff'r'e	23.82	23.90	20.76
	100.00	100.00	100.00

314. Deposit from the bottom of a pond hole. Sent August 11, by D. H. Van Hoosear, East Wilton.

Water	34.44
Organic and Volatile	2.78
Insol'ble in acids, sand and a little clay	59 20
Soluble in acids	3.58
	100.00

316. New Jersey Green Marl. Kirkwood Marl and Fertilizing Co., Kirkwood, N. J. Dealer, Paul Thomson, West Hartford. Sample received from Paul Thomson, Aug. 25. Price at Hartford $4.00 per ton.

ANALYSIS.

	316	By N. J. geologist.
Moisture	16.70	9.66
Combined water	3.26	
Sand (insoluble silica)	18.33	50.80
Silica, soluble	26.65	
Oxides of iron	23.90	17.63
Alumina		8.77
Lime	.43	2.13
Magnesia	3.12	3.54
Potash	5.69	5 18
Soda	.60	....
Phosphoric acid	.90	2.24
Sulphuric acid	.42	.39
Other matters undet'md.		....
	100.00	100.34

The Green Sand Marl has long been a staple fertilizer and amendment in the State of New Jersey, where it occurs as a geological deposit or rather as three distinct deposits, (upper, middle and lower marl beds) which stretch across the State from the Highlands of Navesink near Sandy Hook, to the Delaware river below Wilmington, and in many localities admits of easy excavation. In composition it is somewhat variable as shown by the analyses above given, made on separate samples which were obtained quite near each other. If the value of the potash and phosphoric acid in the above analysis is reckoned, for the former, at its lowest price. viz., 4½ cts. per lb., and for the latter at 9 cts. per lb. the value of reverted phos. acid, we have in 2,000 lbs. of **316**, no less than 114 lbs. of potash worth $5.13 and 18 lbs. of phos. acid worth $1.62, the total being $6.75. The same reckoning applied to the other analysis which is published by Prof. Cook in the Annual Report of the State Geologist of New Jersey for 1878. p 45, gives 103.6 lbs. potash worth $4.66 and 45 lbs. phos. acid worth $4.03, the total being $8.69 as the worth of a ton.

It must be conceded however, that the green marl contains its potash not in the freely soluble state of muriate or sulphate, but as a less soluble silicate, not worth commercially so much as the potash of potash-salts. Experience shows however, that vegetation makes ready use of the plant-food contained in the marl, its application having a speedy effect on clover and grass.

The silicate of alumina, iron and potash which constitutes the green sand (or *glauconite*, as the pure green mineral is termed by geologists), in fact readily suffers decomposition with liberation of its potash, and at the same time furnishes in the residual silicate, the substance which confers on good soils their remarkable quality of retaining the soluble fertilizing elements which would otherwise go to waste. No doubt it is this silicate which largely accounts for the striking improvement of the light sandy soils of Eastern New Jersey, large tracts of which have been transformed from a desert to a garden, mainly as a consequence of the use of this marl.

At the price charged, the green sand marl will be found, to judge from the results of its use in New Jersey, a cheap means of improving not only our very light soils, but also the better loams which require constant manuring to maintain their fertility.

This marl must usually be applied in large quantities, several tons to the acre, in order to get good results. It then forms a valuable amendment and a durable source of potash.

CORRECTION.

In Bulletin No. 31, the cost of Lombard & Matthewson's Superphosphate, Station No. 295, should be $38.00 instead of $40.00.

THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION was established in accordance with an Act of the General Assembly, approved March 21, 1877, "for the purpose of promoting Agriculture by scientific investigation and experiment."

The Station is prepared to analyze and test fertilizers, cattle-food, seeds, soils, waters, milk, and other agricultural materials and products, to identify grasses, weeds, and useful or injurious insects, and to give information on the various subjects of Agricultural Science, for the use and advantage of the citizens of Connecticut.

S. W. JOHNSON, *Director.*